

Serial No.: 10/053,666  
Atty. Docket No.: P67552US0

**REMARKS**

The Office Action mailed February 2, 2007, has been carefully reviewed. Claims 15, 19-28, 30 and 32-34 are pending in the application. Claims 15, 27, 28 and 30 are independent.

The Examiner rejected claims 15, 19, 21-23, 26, 27, 30 and 32-34 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,234,423 to Hirahara et al. ("Hirahara"). Under 35 U.S.C. 103(a), the Examiner rejected claim 20 as being unpatentable over Hirahara in view of U.S. Patent No. 3,102,559 to Koppelman et al. ("Koppelman").

By this Response, Applicants request favorable reconsideration of the pending claims in view of the following remarks and the evidence of non-obviousness represented by the Declaration of Helmut Kaufmann, as provided herewith in accordance with 37 C.F.R. 1.132.

Mr. Kaufmann is employed by a third party R&D company in Austria (paragraph 1), and has extensive education and experience in the field of composite structures and materials (paragraphs 2 and 3). In view of his qualifications, his opinion as to the level of ordinary skill in the aviation field as related to composite technology serves as evidence of the non-obviousness to such persons of making a fitting of synthetic composite material.

Serial No.: 10/053,666  
Atty. Docket No.: P67552US0

More particularly, Mr. Kaufmann states in paragraph 5 of his Declaration that, prior to learning of Applicants' invention in 2004, it was known to make aircraft spoiler hinges of metal, and to use metal fasteners for secure connection of the metal hinges, i.e., "fittings" to the movable parts. Mr. Kaufmann further states in paragraph 6 that he considers the subject matter of the captioned application to set forth the carbon fiber reinforced plastic/resin transfer molding (CFRP/RTM) aircraft spoiler *hinge* design of the Applicants (emphasis added).

In the Examiner's outline of his position in view of Hirahara, the Examiner states that the fitting corresponds with the components identified by reference numerals 13a and 13b, which the Examiner states are used to connect elements 11, 14 and 15 to the tail of the aircraft. Since Hirahara does not disclose a bearing, the Examiner takes official notice that bearings are a well known means to permit constrained relative motion between a structural and a movable part.

As was previously discussed in connection with element 13b in the Amendment filed on October 17, 2006 ("the October Amendment"), Applicants cannot agree that components 13a and 13b, either separately or together, can properly be identified as a "fitting". This is substantiated by Mr. Kaufmann's declaration in

Serial No.: 10/053,666  
Atty. Docket No.: P67552USQ

which he repeatedly refers to a fitting as a *hinge*, and identifies the fitting/hinge in Hirahara as being represented by the six unlabeled hinges of Hirahara Figure 2 (see the attachment to his declaration), which Mr. Kaufmann marked with the letter "H". In discussing these fittings/hinges in paragraph 8, Mr. Kaufmann states that to his understanding, "*Hirahara does not address the hinges at all*, but only methods of forming the box structure of the movable surface" (emphasis added). Therefore, elements 13a and 13b are part of the box structure of the movable surface; they are not fittings as that term is known and understood in the aircraft industry.

As summarized in the October Amendment, Hirahara is directed to a method of making a composite material airfoil structure which includes the U-shaped spar 13 bonded to the upper and lower skins 11 and 12 (column 4, lines 50-60). In forming the spar, a laminate of composite prepreg is formed into the illustrated U-shaped cross sectional shape and molded under heat (see column 6, lines 6-11). The spar is then fitted to the upper and lower skins, as shown in Figure 9, and pressed by load application blocks 34 in a bonding jig 30 to form a *single airfoil structure* (see Figures 11 and 12; column 6, lines 18-29). Neither 13a nor 13b are used to connect the airfoil structure to the

Serial No.: 10/053,666  
Atty. Docket No.: P67552US0

aircraft structural component; rather, elements 13a and 13b are part of the airfoil structure itself.

As stated by Mr. Kaufmann in paragraph 8, the actual *fitting* component that is used to connect the composite airfoil structure of Hirahara to the aircraft structural component is not discussed therein. Instead the fitting is only outlined in Figures 1 and 2 by the unnumbered vertical members, now marked by the letter "H" in the attachment to Mr. Kaufmann's declaration.

Mr. Kaufmann further states that, due to the significant wall thickness differences between hinges and airfoil web and flange structures, the spar 13 of Hirahara could not be produced as a composite part together with the fitting using technology other than that being claimed in the present application (see paragraph 9). Only the CFPR/RTM hinge fitting of the claimed invention has the required mechanical properties to be used in place of a metal fitting in connection with parts having significant wall thickness differentiation (see paragraph 10).

With respect to the RTM method, Mr. Kaufmann states in paragraph 11 that resins used in fiber reinforced systems such as RTM have modified flow characteristics due to the additives that are added to the resin to attain the mechanical properties needed in order for the fitting made by the RTM method to be suitable for

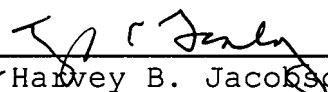
Serial No.: 10/053,666  
Atty. Docket No.: P67552US0

its intended use. Hence, in paragraph 12, Mr. Kaufmann summarizes by stating that a fitting made of synthetic composite material according to the RTM method is "*structurally different*" from the structure and process disclosed by Hirahara and is not obvious in view thereof.

In view of the foregoing evidence relating to the level of ordinary skill in the art and the structural differences resident in a fitting made by the RTM method, as provided by a third party with respect to the present invention, claims 15, 27, 28 and 30, along with the claims dependent thereon, are patentable over the prior art.

With this amendment and the foregoing remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any questions or comments, the Examiner is cordially invited to telephone the undersigned attorney so that the present application can receive an early Notice of Allowance.

Respectfully submitted,  
JACOBSON HOLMAN PLLC

By  Reg. No. 40,495  
Harvey B. Jacobson, Jr.  
Reg. No. 20,851

400 Seventh Street, NW  
Washington, D.C. 20004-2201  
Telephone: (202) 638-6666  
Date: August 2, 2007  
HBJ:SCB  
R:\SBAILEY\2007\08-07\P67552US.amd